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Clinical Recommendations for Epistaxis Management During the COVID-19 Pandemic

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Abstract

Epistaxis is a common complaint in the general population, and its treatment is a common procedure in emergency departments. In the COVID-19 era, procedures involving airway management are a particular risk for health care workers due to the high virulence of the virus, the transmission through aerosol, and the risk of contagion from asymptomatic patients. In this article, we propose a simple memorandum of clinical recommendations to minimize the risk of operator infection deriving from epistaxis management. The correct use of personal protective equipment and strict compliance with the behavioral guidelines are essential to reduce the potential risk of infection. In particular, the use of filtering masks is strongly recommended since all patients, including those referring for epistaxis, should be treated as being COVID-19 positive in the emergency department. The safety of health care workers is essential not only to safeguard continuous patient care but also to limit virus transmission.

Keywords

epistaxis, COVID-19, emergency, otolaryngology

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The outbreak of SARS-CoV-2 (COVID-19) in the city of Wuhan, China, has evolved rapidly into a public health crisis and has spread exponentially to other parts of the world.[1] Medical professionals caring for patients with COVID-19 are at high risk of contracting the infection, given its high virulence and the occurrence of contagion from asymptomatic individuals.[2] In Italy, the percentage of health care workers infected by COVID-19 accounts for about 10% of total patients.[3] Procedures involving airway management are a particular risk for the generation of aerosols or droplets laden with viral particles[4]; thus, specific guidelines have been proposed for some aerosol-generating procedures in hospitalized patients, such as tracheostomy.[5,6]

Among diseases requiring prompt treatment in the emergency department (ED), epistaxis accounts for about 0.5% of all ED visits and up to one-third of all otolaryngology-ED procedures.[7] In this article, we propose a simple memorandum of clinical and behavior recommendations to minimize the infection risk to health care workers involved in the treatment of epistaxis in the ED.

Clinical Recommendations for Epistaxis

Personal Protection

As a general rule, all patients should be treated as being COVID-19 positive, with health care workers using the highest level of personal protective equipment (PPE). The use of disposable equipment must be strictly recommended. The use of filtering masks has been widely debated, and they have demonstrated protection against aerosols. FFP3 (Europe) or N99 (US) masks, which allow a minimum 99% filtration, must be preferred to any other option.[8] However, in case of FFP3 mask absence, FFP2 or N95 masks can be used, covered by a surgical mask.[6] Cap and shoe covers are considered necessary for safely dressing; eye protection through the use of surgical goggles or a face shield is required; and the use of double gown is preferable, where available. The use of double nitrile gloves is recommended.[3,6]

Clinical Assessment

Before clinical procedures, all patients should be asked about contacts at risk for COVID-19, fever, and respiratory symptoms. Patients referencing sudden loss of smell and/or taste should be considered at high risk for COVID-19 infection.[9] Patients should wear a surgical mask covering the mouth, if permitted by the clinical condition.

Prompt assessment of the severity of epistaxis should be performed by a physician or a nurse in the ED to distinguish patients who require prompt treatment from patients who do not. Patients with prolonged bleeding, bleeding from both sides of the nose or from the mouth, or any signs of acute hypovolemia (tachycardia, syncope, orthostatic hypotension) must be immediately treated, while patients with minor

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Table 1. Clinical Recommendations for Epistaxis During the COVID-19 Pandemic.

Personal protection	The use of disposable equipment must be strictly recommended.
	FFP3 (Europe) or N99 (US) masks must be preferred.
	FFP2 or N95 masks can be used in case of FFP3 mask absence, covered by surgical mask.
	Cap and shoe covers, goggles, gown, and double nitrile gloves are strongly recommended.
Clinical assessment	Control risk factors for nosebleed (blood pressure, coagulation factors, ongoing therapies with antithrombotic or anticoagulant drugs).
	Check fever, respiratory symptoms, and contact at risk.
	Sudden loss of smell and/or taste should be investigated.
	Dress patients with a surgical mask, if permitted.
	Prompt assessment of the severity of nosebleed should be achieved immediately.
	Noninvasive intervention (bidigital compression, administration of antifibrinolytic agents) is recommended.
Room setting	If conventional operating rooms are not available, well-demarcated areas within the emergency department complex should be used.
	Reduced and experienced clinical staff with proper personal protective equipment, including a surgeon and a scrub nurse.
Treatment	Avoid intervention unless necessary.
	Nasal packing or cautery should be performed in case of failure of noninvasive procedures.
	Resorbable packing should be recommended, if available.
	Posterior epistaxis requiring sphenopalatine artery ligation should be postponed until COVID-19 testing is performed before surgical intervention.
	Local anesthetic atomized sprays should be avoided and soaked pledgets preferred.
	Suction system should be used during the procedure within a closed system with a viral filter.
Postprocedure recommendations	Postprocedural instructions regarding packing removal or antibiotic prophylaxis should be provided to the patient to reduce risks of recurrences and optimizing outcomes.
	Gowning and degowning procedures should be carefully executed.
	Personnel who handle the decontamination of surgical equipment should also be appropriately protected in standard personal protective equipment.

active bleeding should be addressed in a non-ED setting where available.

General risk factors, such as high blood pressure, coagulation factors, and ongoing therapies with anticoagulant or antithrombotic drugs should be assessed.

Noninvasive intervention for nosebleed, including bidigital compression to the lower third of the nose for at least 15 minutes and administration of antifibrinolytic agents, such as tranexamic acid, should be strictly recommended before more invasive interventions are attempted.

Room Setting

Ideally, invasive treatment should be performed in the operating room (OR); however, well-demarcated areas within the ED complex could be used if a conventional OR is not available.

Only an experienced clinical team with proper PPE should be involved in the treatment of epistaxis, preferably including a surgeon and a scrub nurse. Additional clinical staff should be reserved for selected cases; an anesthetist should be needed for patients requiring sedation in a conventional OR.

Treatment

Nasal packing or cautery should be performed in case of failed noninvasive procedures (eg, compression) or in case of an epistaxis episode judged to be life-threatening or unlikely to respond to further compression alone. The use of resorbable packing is recommended, if available, to reduce the need for future visits, although experience and local availability of resorbable packing may dictate the specific type of material used.

Posterior epistaxis requiring sphenopalatine artery ligation should be postponed until COVID-19 testing is performed.[10] The use of local anesthetic atomized sprays should be avoided, and soaked pledgets should be preferred.[10] A suction system should be used during the procedure within a closed system with a viral filter.[5]

Postprocedure Recommendations

Postprocedural instructions regarding packing removal or antibiotic prophylaxis should be provided to the patient to reduce risks of recurrence and to optimize outcomes.

''Gowning and degowning'' procedures should be carefully executed, as improper removal may result in operator contamination.[5] The postprocedure waste disposal and decontamination of equipment need careful consideration to minimize contamination of the environment. Personnel who handle the decontamination of surgical equipment should also be appropriately protected in standard PPE (**Table 1**).

Discussion

Epistaxis is a common complaint in the general population,[7] and its management should be considered a COVID-19 at-risk procedure for several reasons. First, the surgical treatment of epistaxis inevitably presents risk for droplet emission and viral transmission due to the close contiguity of physician and patient. Moreover, nasal packing without anesthesia or sedation may be painful; thus, the patient is unable to control involuntary reflexes such as coughing. Second, treatment of epistaxis needs prompt medical intervention; as such, the presence of respiratory symptoms or the close at-risk contacts of the patient may not be properly investigated. Third, anterior nasal packing is generally performed by nonspecialist physicians in various settings, including the outpatient office or ED. Last, ''doffing'' procedures after epistaxis management may be considered a risk for COVID-19 infection by accidental contact with the contaminated PPE.[10]

Conclusion

Treatment of epistaxis is a frequent procedure performed in the ED and exposes health care workers to risk of contagion. Specific recommendations should be followed before, during, and after epistaxis intervention to ensure the safety of health care workers.

Author Contributions

Vittorio D'Aguanno, design of the work, drafting the work, final approval of the version to be published, agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved; **Massimo Ralli**, conception of the work, drafting the work, final approval of the version to be published, agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved; **Antonio Greco**, interpretation of the data, revision of the work critically for important intellectual content, final approval of the version to be published, agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved; **Marco de Vincentiis**, conception of the work, revision of the work critically for important intellectual content, final approval of the version to be published, agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Disclosures

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Availability of Data and Materials

The data sets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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